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THE ROOTS, THE BRANCHES AND THE FRUITS: EXPLORING THE IMPACT OF BRAZILIAN STUDENT ENTREPRENEURSHIP SOCIETIES ON STARTUP CREATION AND ON ENTREPRENEURSHIP EDUCATION

LAS RAÍCES, LAS RAMAS Y LOS FRUTOS: EXPLORACIÓN DE LOS IMPACTOS DE LOS CLUBES DE EMPRENDEDORES UNIVERSITARIOS BRASILEÑOS EN LA CREACIÓN DE STARTUPS Y EN LA EDUCACIÓN EMPRENDEDORA

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Fernando Guerreiro*
https://orcid.org/0000-0002-8691-5660 (ORCID iD)
Universidade Federal de São Carlos (UFSCar), Brazil

Roberto Ferrari
https://orcid.org/0000-0003-3213-5084 (ORCID iD)
Universidade Federal de São Carlos (UFSCar), Brazil

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ABSTRACT

Student Entrepreneurship Societies (SES) are bottom-up organizations, led and developed by university students to promote entrepreneurship and innovation practices. This paper reports results of research aimed to survey the Brazilian SES, characterizing their main activities, challenges, supporters, and how SES are impacting startup creation and the development of entrepreneurship skills among students. We identified the Brazilian SES, applied two questionnaires to gather information about the SES and interviewed some SES leaders. We found 92 SES in Brazil. Only 3,7% of the 2608 Brazilian Universities were linked to a SES, and the 940 students directly involved in SES

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*Corresponding author: fernandoguerreiro@estudante.ufscar.br
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represent only 0,01% of the 8.03 million Brazilian university students. In the UK such proportion is considerably higher - 1,2%. SES members study Canvas Business Model, pitch, MVP, Design Thinking and Lean Startup; they promote talks, workshops, networking events, hackathons, and business plan competitions. They develop practical projects essentially in all areas and receive support from professors, entrepreneurs, startups, investors and other agents of the ecosystem. Although SES leaders have reported participation and/or support in the creation of 24 startups, only 8 (28,57% from 28 respondent SES) had records on startup creation. Through involvement in SES, the student's education is enriched by theory and practice, networking, and influence from professors, entrepreneurs, startup communities and other students. The positive impact of SES on a student's professional development should motivate policy makers, startup communities, investors and universities to consider increasing support to SES. New research should be conducted to shed light on the impact of SES for the creation of new businesses.

KEYWORDS
Student Entrepreneurship Societies. Brazil. Startup creation. Higher education. Entrepreneurship education.

RESUMEN

Club de Emprendedores Universitarios (CEU) son organizaciones bottom-up, dirigidas y desarrolladas por universitarios para promover las prácticas emprendedoras e innovadoras. Este artículo presenta los resultados de la investigación apuntados por una exploración de los CEU brasileños, caracterizando sus principales actividades, desafíos, simpatizantes y como los CEU impactan en la creación de startups y en el desarrollo de las habilidades emprendedoras entre los estudiantes. Nosotros identificamos los CEU brasileños, aplicamos dos cuestionarios para reunir informaciones sobre los CEU y entrevistamos algunos líderes de los CEU. Encontramos 92 CEU no Brasil. Apenas 3,7% de las 2608 Universidades Brasileñas están vinculadas a CEU y los 940 universitarios participantes representan solamente 0,01% de los 8.03 millones de universitarios brasileños. En UK, la proporción es mayor - 1,2%. Los participantes estudian *Canvas Business Model, pitch, MVP, Design Thinking* y *Lean Startup*; Ellos organizan palestras, workshops, eventos de *networking, hackathons* y competiciones de planes de negocios. Los participantes desarrollan proyectos importantes en todas las áreas y reciben apoyo de los maestros, emprendedores, startups, inversionistas y otros agentes del ecosistema. Aunque los líderes de los CEU informaron la participación y ayuda en la creación de 24 startups, solo 8 (28,57% de 28 encuestados) tenían números de creación de startups. Por mediación de los CEU, la educación universitaria fue más completa en relación a la teoría y la práctica, *networking* e influencia de los maestros, emprendedores, comunidad de startups y otros universitarios. El impacto positivo de las CEU en el desarrollo profesional de los universitarios debería motivar a los tomadores de decisiones, comunidades de startups, inversionistas y universidades a aumentar el apoyo a los CEU. Nuevas investigaciones deben ser conducidas para conocer el impacto de los CEU en la creación de nuevos negocios.

PALABRAS CLAVE
Club de Emprendedores Universitarios, Brasil, Creación de Startups, Formación Universitaria, Educación Emprendedora.

INTRODUCTION

> *"Grassroots innovation movements identify issues and questions neglected by formal science, technology, and innovation organizations. Grassroots solutions arise in unconventional settings through unusual combinations of people, ideas and tools" (Smith et al., 2016).*

Student Entrepreneurship Societies and Clubs (SES) are bottom-up organizations, led and developed by students to promote entrepreneurship and innovation practices like startup competitions, hackathons, mentoring sessions, and to establish a relation with local startup community and students in their High Education Institutions (HEIs). SES improve the development of entrepreneurial skills and foster business creation during undergraduate education. Students are the roots of Student Entrepreneurship Societies (SES).

Specific problems on the construction of a SES were studied by Pan J. (2018), who concluded SES provide a broader space for entrepreneurial development of college students. SES promote practical learning experiences outside the classroom and enhance entrepreneurial capabilities, which complement learning processes inside classrooms (de Castro Krakauer, 2020, Krakauer & Coda, 2020, Wang 2020a, Ribeiro & Plonski, 2019), contributing to build a solid foundation about entrepreneurship and innovation. Students that belong to a SES have a higher degree of Entrepreneurial identity when compared to students that do not belong to such societies (Wensink, 2020). The startup intention promoted by SES affects innovative behavior and has a significant effect on innovation, risk taking and proactiveness (Lee, Jeon & Lee, 2018, Lee, Kim & Sung, 2019). These capabilities and mindset promoted by SES experiences are becoming more crucial for the success of future society, as cited by Li et al. (2020). Moreover, college students with a background in innovation and entrepreneurship are encouraged to choose more suitable projects (Wang, 2020b).

In England, the first student enterprise group began in 1999 at Cambridge University (Preedy & Jones, 2015). In 2002, Oxford Entrepreneurs was founded and over the years this society achieved as much as US$3 billion of combined valuation of startups created by alumni, the society members along the years were 12,000 and the network impact members are more than 65,000 (Oxford, 2021). These university students were already playing a leading role in the development of student entrepreneurship at their institutions. The movement of SES grew considerably in the UK and became nationally connected through the National Association of College and University Entrepreneurs (NACUE), formed in 2008. The initial group of NACUE has grown into a national non-profit organization with a thriving national network representing over 200 college and

university enterprise societies (NACUE, 2021). Research studies about SES in the United Kingdom, such as Price & Rae (2012), and Rae et al. (2012) are used in this paper to compare with results from the Brazilian scenario.

Princeton Entrepreneurship Club is one of the largest SES in the United States, with 250 active members and more than 1,600 students from all over the world involved in their annual initiatives. Princeton SES was founded in 1999 to provide opportunities and foster student entrepreneurship activities and learnings on campus through hackathons, STEM (science, technology, engineering and math) education and actions to empower different groups to learn and practice entrepreneurship (Princeton, 2022, Pittaway et al., 2011 and Regele et al., 2012).

In China, the entrepreneurship clubs for college students have been mushrooming (Kunlun, 2015 cited in Pan, 2018, 767) and the National College Student Science and Technology Pioneer Park has reached more than 280 clubs. A National Representative Sample of universities was examined, and results show that college students are increasingly interested in entrepreneurial activities. However, the findings also show that the students' intentions to create new business are still low (You, Zhu & Ding, 2017).

In Finland, the Helsinki Spring, "a sudden flourishing of Silicon Valley, style entrepreneurial aspiration on Finland's frigid soil, promoted a cultural change about entrepreneurship" (Lehdonvirta, 2013). Then, the movement of SES started in 2008 when a group of students from Aalto University decided to start a grassroots movement around entrepreneurship, founding Finland's first Entrepreneurship Society (Jiménez-Salgado, 2019, Aaltoes, 2022). In 2017, nine years after, the number of Finnish SES were close to 20, according to Parkkari & Kohtakangas (2018). In literature, several papers describe the Finnish SES, for instance, the development of a cross-border student entrepreneurship community between Finland and Russia (Kerosi, 2020), Students Entrepreneurship aspirations (Wensink, 2020), the identities of entrepreneurship desirable at HEIs (Siivonen et al, 2020) and the outcomes from Finnish SES events (Järvinen, 2019).

The first Brazilian Student Entrepreneurship society was the University of São Paulo FEA Entrepreneurship Society, founded in 1997 (Ribeiro, 2016). This society aims to introduce the entrepreneurship career to students that previously just considered working in big enterprises or consulting firms. The Brazilian SES movement began to grow in 2012 with the foundation of more SES by Brazilians and, after that, the country reached 92 student entrepreneurship societies up to August 2021. In 2020, a national movement of Brazilian student entrepreneurship societies and clubs called Vortex was started, which aims to offer support to connect and empower SES and their young student entrepreneurs from across Brazil to collaborate and create change. Vortex was founded by members of six different societies and universities.

Founders of big Brazilian startups like "Nubank" and "99" have mentioned that the University of São Paulo Entrepreneurship Society supported their startups in the initial stage (Ribeiro, 2016). Brazilian Student Entrepreneurship Societies like Insper Entrepreneurs Society and Fundação Getúlio Vargas Entrepreneurship Society had former members that developed successful startups with increasing growth in Brazilian markets, like the founder of two startups "La Pag" and "Gal Salon", that raised an investment of BRL 40 million for the latter Ingizza (2021). And "Mais mu" a startup founded by a member of Fundação Getúlio Vargas SES, which raised BRL 2,25 million in their first round Serpa (2020).

Student Entrepreneurship Societies have a lot in common with Junior enterprises. Both - Junior Enterprises and SES - are created and managed by students; both have the potential of enhancing student's academic and professional experiences. But there are differences too. The main difference is on the activities they develop. In Junior Enterprises students offer consultancy, business services and products to other companies (Daniel & Almeida, 2020). Junior Enterprises are business organizations providing business services. Student Entrepreneurship Societies are not enterprises, and do not provide business services. SES promote interaction of students with the startup community, startup competitions and hackathons, in order to encourage entrepreneurship practices. The focus of SES is on encouraging students to develop entrepreneurial skills and to create their own business.

Considering such differences, we have not included Junior Enterprises in our research universe. The scope of our study are the Student Entrepreneurship Societies and Clubs (SES), their creation, their development and their impact on startup creation and on student entrepreneurial skills. The term in Spanish for *Student Entrepreneurship Society (SES)* is *Club de Emprendedores Universitarios (CEU),* as can be seen in the studies of Zorob Avila (2012) and Herrera et al. (2020).

LITERATURE REVIEW

There are several forms of developing entrepreneurial skill on students, from more traditional ways such as entrepreneurship curses or disciplines, to extracurricular activities and student's initiatives such as SES. Fernández-Portillo (2018) developed a bibliometric study on entrepreneurship education and pointed out research areas around the theme, as entrepreneurship education programs and entrepreneurship intention, teaching how to identify business opportunities, efforts to empower professors, and enhancing entrepreneurship intention by *learning by doing*.

Several studies approach entrepreneurship education on universities, such as Williams (2011), Lemos (2011), Lestari, Rizkalla & Purnamaningsih (2022), Rae et al. (2012), Regele et al. (2012), Shil, et al. (2020) and You, Zhu, & Ding, (2017). Other studies focused on entrepreneurship extracurricular activities on universities (Buckley & Lee, 2021, Preedy & Jones, 2015, Jardim, 2015).

SES Research

Some studies differentiate Student Entrepreneurship Societies and Clubs (SES) from other extracurricular activities, and focus their research specifically on SES (Fauzi, 2021, Pan, 2018, Ribeiro, 2016, Kunlun, 2015, Zamcu, 2014, Price & Rae, 2012 and Pittaway et al. 2011). One challenge to SES researchers is that there is no official source of information on this topic. In fact, in most countries, such information does not exist.

Schimperna, Nappo & Marsigalia (2022) developed a systematic literature review on entrepreneurship on universities and pointed out three research areas: (i) student entrepreneurship and entrepreneurial intention; (ii) university support for entrepreneurship; (iii) entrepreneurship education and learning. They

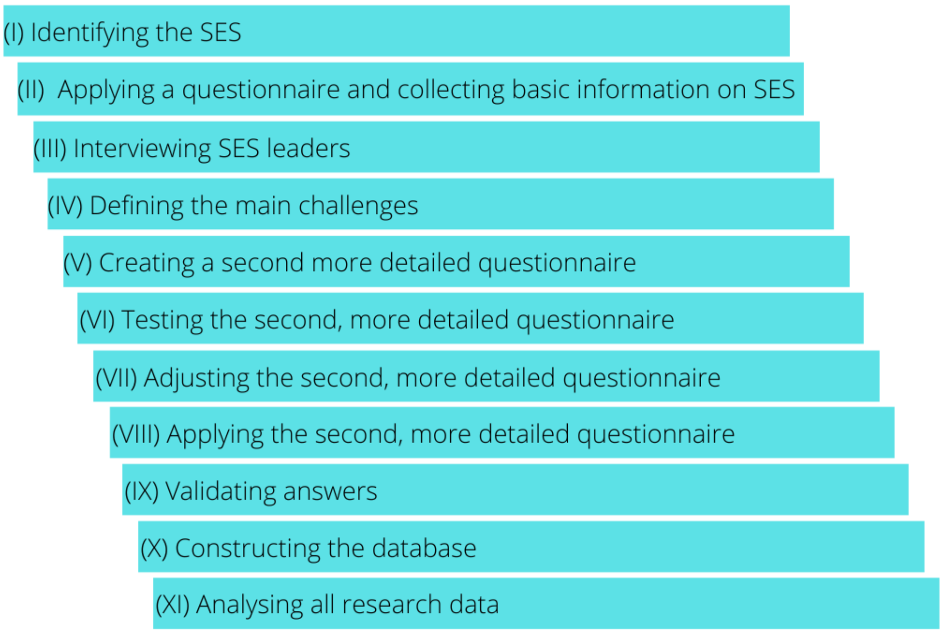
classified research on Student Entrepreneurship Societies and Clubs (SES) in the area iii (entrepreneurship education and learning).

This study aims to characterize the Brazilian scenario of Student Entrepreneurship Societies (SES), to provide a better understanding on the activities the SES are developing, their challenges, main supporters, and to shed light on how SES are impacting startup creation, and student readiness for professional life. The study is structured in the sections: (I) Introduction (including literature review), (II) Methodology, (III) Results, (IV) Discussions and conclusions and (V) References. The Results section includes: Overview of Brazilian Societies, Geographic Distribution, SES linked to Universities, Year of Foundation, Membership, Working Areas, Activities, Themes Studied, Community Supporters, Period as SES Member, Main Challenges, and New Ventures Creation.

METHODOLOGY

In order to meet the overall goal of obtaining a better understanding about Student Entrepreneurship Societies and Clubs (SES) we proposed, in a first phase, identifying all the active SES in Brazil. In a second phase we would interact with Brazilian SES and obtain information on the activities being developed, working areas, number of students involved, main challenges, and impact in terms of business creation and student qualification. We have detailed these two phases in an eleven-step methodology, as seen in Figure 1.

Figure 1. Research method



As a first step, we conducted a survey to find the Brazilian SES, searching in university websites, social media and google to find contact channels of the SES. As a second step, we sent a first questionnaire to the leaders of each society identified in step 1, to collect the main characteristics of the SES, such as year of foundation, number of members, main challenges, linked universities, and

financial support. The question about the main challenges accepted long answers, so that the members could write everything they thought about the SES challenges.

In the third step, a random selection of leaders of 25% of the SES found in step 1 were interviewed to provide a deeper understanding on the main challenges they have reported in step 2. The interviews were made in online meetings with thirty to sixty minutes of duration, where the leaders explained about their challenges in the societies, and we take notes about their comments. In the fourth step, we have processed the results of interviews (step 3) and defined a list of twenty challenges faced by SES.

Based on the criteria proposed by Feld (2020), Feld & Hathaway (2020), Lemos (2011), Price & Rae (2012) and Ribeiro (2016), in step 5 we created the pilot of a second, more detailed questionnaire to better understand different aspects of SES such as activities developed, working areas, relationships, how they achieve financial support, impact on business creation and student qualification. We then tested the second questionnaire with seven random SES (step 6). The feedback obtained in step 6 allowed us to improve the above-mentioned questionnaire (step 7).

In step 8, the adjusted version of the second questionnaire was sent to all the societies identified in the first step. In step 9 we validated the answers and in step 10 we compiled all research data, creating a data base about the Brazilian SES. In step 11 we analyzed the data base, compared results and drew conclusions.

"Mixed methods may help to improve entrepreneurship research addressing challenges emphasized in earlier studies" (Molina et. al, 2012). In the present research we have used both quantitative and qualitative methods to obtain information about Brazilian SES, to promote international comparisons and, finally, to shed light and provide a better understanding on Student Entrepreneurship Societies and their impact. The quantitative investigation is aimed to measure the impact of SES activities and their contributions. The qualitative portion intends to provide a better understanding on the country's scenario, and comparison with other qualitative studies.

RESULTS

Overview of Brazilian Societies

There are 92 Student Entrepreneurship Societies in Brazil, as concluded during research conducted in 2020 and 2021. After the survey in the first phase, a first questionnaire was applied to collect basic data about the SES (step 2). This first questionnaire, applied in June-August 2020, was answered by 72 (78%) of the societies identified in step 1.

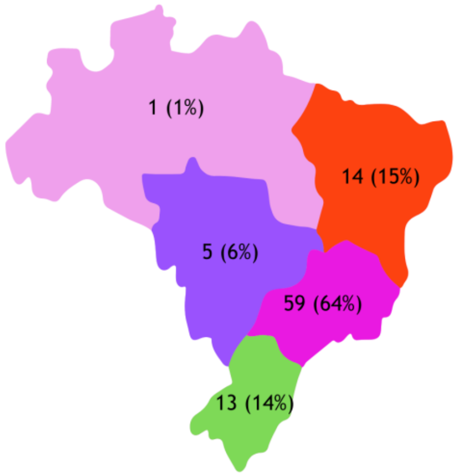
Through a second questionnaire, applied in 2021 (steps 5 to 8), we collected 57 in-depth answers from Brazilian Societies, representing 62% of the total number of SES. A lower percentage of answers was expected in the second, in-depth questionnaire, because it had more than seventy questions. The respondents were in the positions of president or president director (44%), founder (24%), director (16%), leader (9%) or a member (7%) of a SES.

Geographic Distribution

Figure 2 shows the number of SES in each one of the 5 broad regions of Brazil: North (1 society), Mid-west (5 societies), South (13 societies), Northeast (14

societies) and Southeast (59 societies). The states with the largest number of SES were São Paulo (Southeast) with 28 societies, Minas Gerais (Southeast) with 20 societies, Rio de Janeiro (Southeast) and Rio Grande do Sul (South) with 8 societies each.

Figure 2. Geographical distribution of Brazilian Student Entrepreneurship Societies and clubs (SES), according to country regions.



The city with the highest number of SES is São Paulo, in São Paulo State (SP), Southeast Region. We found 9 SES in the city of São Paulo. In the whole São Paulo state area, we found 28 SES. The cities of Lavras (state of Minas Gerais - MG) and Ribeirão Preto (SP) had 3 SES each. Other 11 cities had two SES: Belo Horizonte (MG), Botucatu (SP), Campinas (SP), Curitiba (PR), Goiânia (GO), Ituiutaba (MG), Monte Claros (MG), Salvador (BA), São Luís (MA), São Carlos (SP), and Teresina (PI); most of these cities are in the Southeast region.

According to Matos & Radaelli (2020), three of the top five Brazilian cities in number of startups are located in the Southeast Region: São Paulo (SP), Belo Horizonte (MG) and Rio de Janeiro (RJ). São Paulo is the city with the largest number of startups and accelerators – 26 (Matos & Radaelli 2020). So, it was expected that São Paulo and the Southeast Region were prevalent in the number of SES as well.

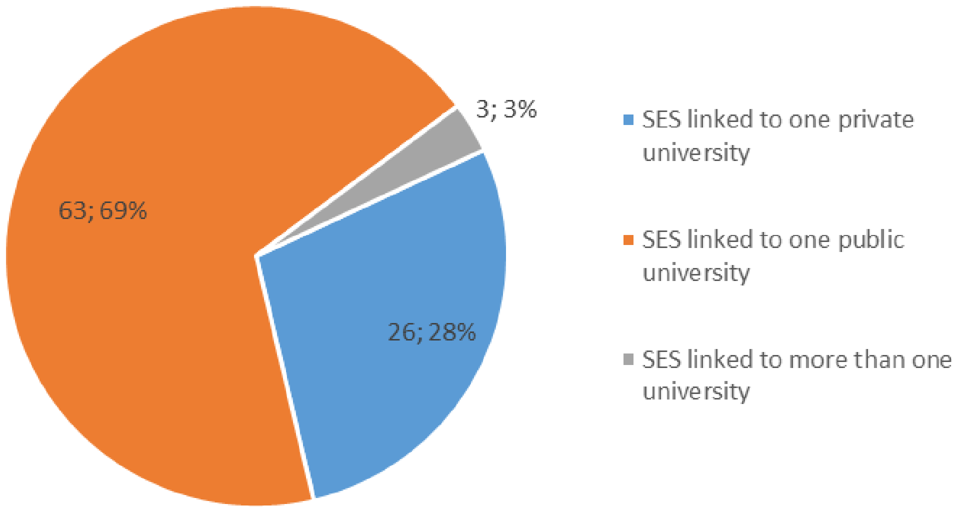
SES linked to universities

In Brazil there are two main types of universities: public universities, which are funded by the federal or state government and have no tuition fees, and private universities, owned by private companies and usually charging monthly tuition fees. At the time of this study, there were 2608 higher education institutions (HEI) in Brazil (DEED, 2019). From this total, 2306 (88,4%) were private universities and 302 (11,6%) were public universities.

Each SES can be linked to one or more universities. There were 89 SES linked to only one university, 2 SES linked to two universities and one society linked to six universities. From the 92 SES, 63 (68,5%) were linked only to public universities. Twenty-six (26) out of the 92 SES (28,3%) were linked to only private

universities. Three (3) other SES (3,26%) were linked to more than one university, possibly public and private ones, as seen in Figure 3.

Figure 3. Number of Student Entrepreneurship Societies and clubs linked to only one public university, only one private university or more than one university**.**

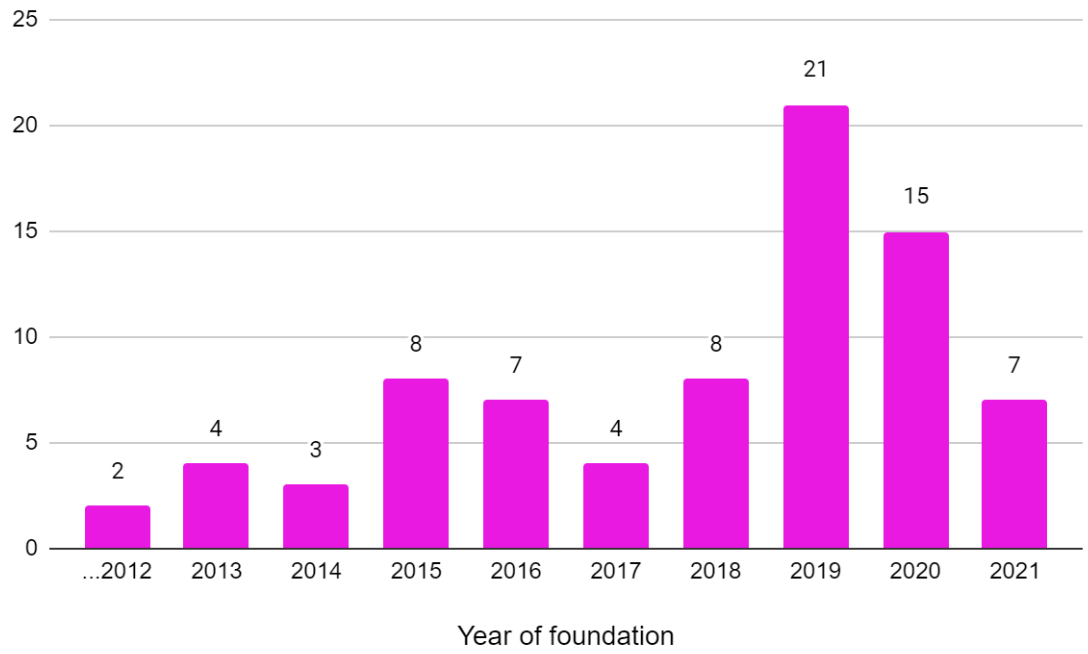


Only 97 (3,7%) out of the 2608 Brazilian Universities were linked to a Student Entrepreneurship Society. Despite the vast majority (88,4%) of Brazilian universities being private, most of the SES (68,5%) are linked to only one public university. A likely reason for this finding is that public universities usually offer full-time courses, and some of them offer student scholarships. Therefore, hypothetically, students from Brazilian public universities may have better conditions to be full-time students and engage in extracurricular projects, compared to students at Brazilian private universities.

Year of foundation

Figure 4 shows the year of foundation of the 79 SES which answered the first and/or the second questionnaire. The strongest growth occurred between 2019 and 2021 – period in which 43 SES were founded, representing 54,4% of all SES that answered at least one of the two questionnaires. If we consider that 36 SES were founded till 2018, the 21 societies founded in 2019 represent a growth of 58%.

Figure 4. Number of Student Entrepreneurship Societies and clubs, by year of foundation.



Membership

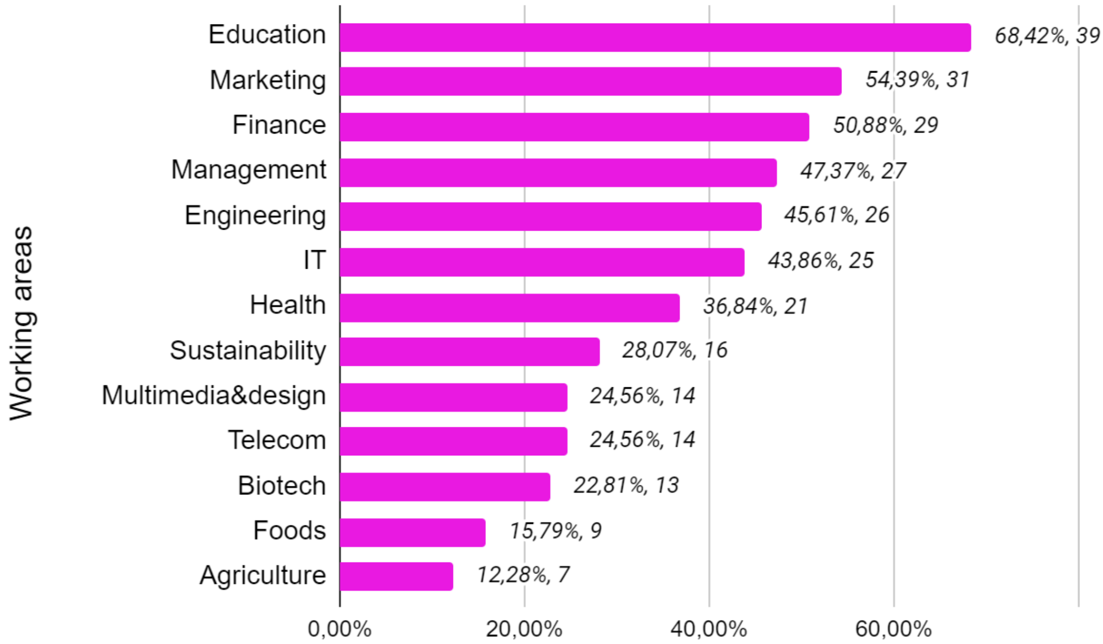
According to the answers gathered with the two questionnaires, in 2020 the total number of students that participated in one of the Brazilian SES was 780. In 2021, the SES had 940 members - a growth of 20,5%. Such numbers strengthen the hypothesis that the highest growth of the SES movement in Brazil is taking place in the last few years.

Although the SES differ from each other in their structural organization and membership, the answers of the two questionnaires show that the most common number of members was 9-13 members in 2021. The small number of members in SES depicts a scenario similar to the one we find in a startup: a small group of people do a lot of things and in some cases don't have a specific role in running a SES.

Working areas

The SES were asked to indicate their operating areas through a multiple-choice question, so the respondents could choose as many areas as they deemed appropriate, from 13 proposed options. This question was answered by 100% of 57 respondent SES. The area of Education was marked by 39 (68%) respondents, while Marketing was chosen by 31 (54%) SES and Finance by 29 (51%). The area of Management corresponds to commerce and management services and was marked by 27 (47%) SES. As seen in Figure 5, the other areas were Engineering 26 SES (46%), Information Technology - IT 25 (44%), Health and Wellness 21 (37%), Sustainability 16 (28%), Multimedia, Design and Arts 14 (25%), Telecom 14 (25%), Biotech 13 (23%), Foods and Beverages 9 (16%) and Agriculture 7 (12%).

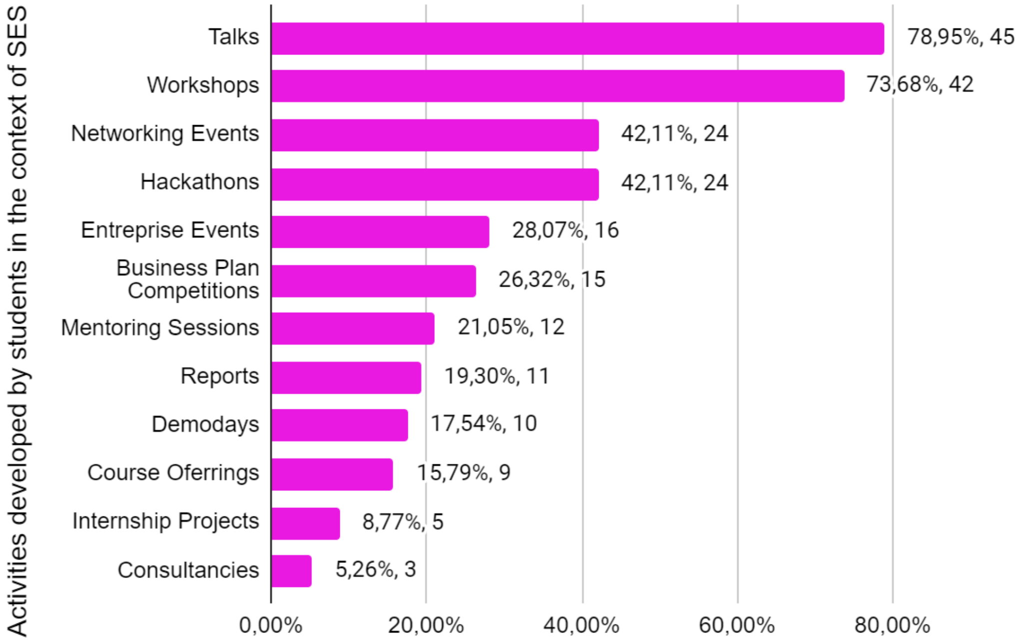
Figure 5. Working areas of Student Entrepreneurships Societies and Clubs



Activities

The SES members were also asked to inform what kind of activities are developed or provided by them. All 57 SES answered this question. The two most frequent activities were promoting Talks - 45 SES (79%) and Workshops - 42 SES (74%). The SES also promote Networking Events - 24 (42%), Hackathons / Idea Competitions - 24 (42%), Enterprise Events - 16 (28%), Business Plan Competitions - 15 (26%), Mentoring Sessions - 12 (21%), Reports - 11 (19%), Demodays - 11 (19%), Course Offerings - 9 (16%), Internship Projects - 5 (9%) and Consultancies - 3 (5%) – as can be seen in more detail in Figure 6. Some of these activities are exclusive SES members, but other activities are open to anyone of the local community which wants to be an entrepreneur or learn about innovation and entrepreneurship.

Figure 6. Activities developed by students in the context of Entrepreneurship Societies and clubs.

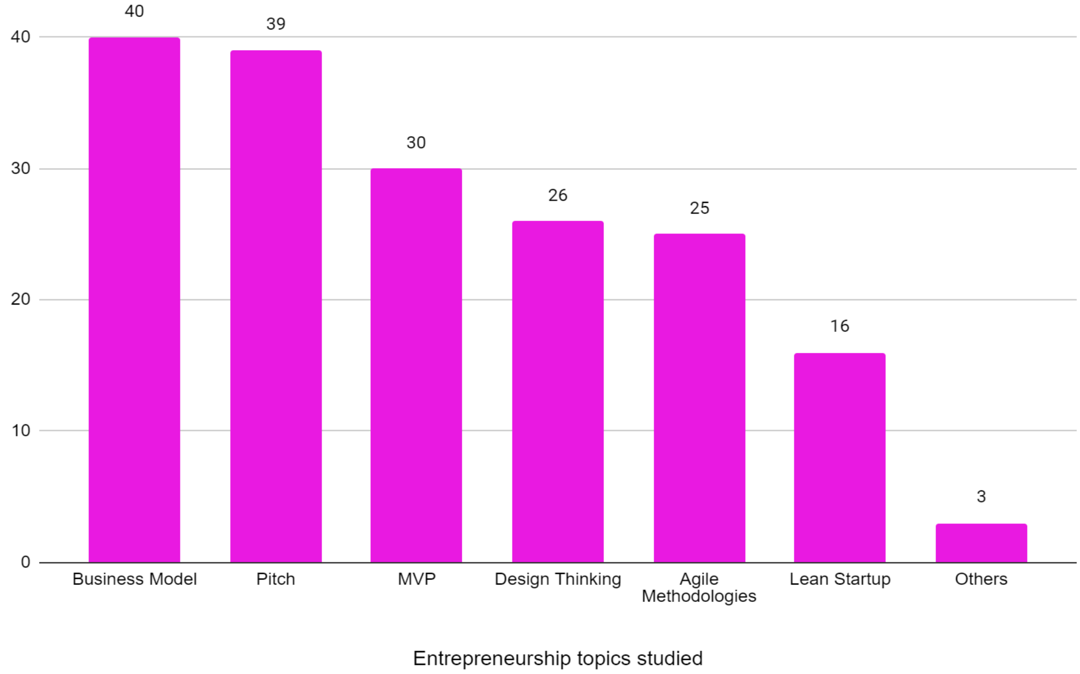


Rae et al (2012) found that the activities developed by SES from England consisted of workshops (79%), entrepreneur events (74%), business plan competitions (68%), idea competitions (59%), enterprise or entrepreneurship game workshops (52%), enterprise or entrepreneurship summer schools (40%). Comparing the results from England with the ones we found in Brazil, it could be noted that workshops, events and competitions were relevant activities in both contexts.

Topics addressed

We also asked about the main topics studied in the context of SES activities, and this question was answered by 52 (91%) out of 57 SES. The most cited topics by SES were Canvas Business Model (40 SES), how to introduce new business with an elevator pitch (39 SES), Minimum Viable Product (30 SES), Design Thinking (26 SES), Agile Methodologies like Scrum & Kanban (25 SES), Lean Startup (16 SES) and Others (3 SES) – Figure 7. In the Others field, the topics cited by the SES were Golden Circle, Government Legal Documents and Health Entrepreneurship.

Figure 7. Topics studied in the context of Student Entrepreneurship Societies and Clubs.

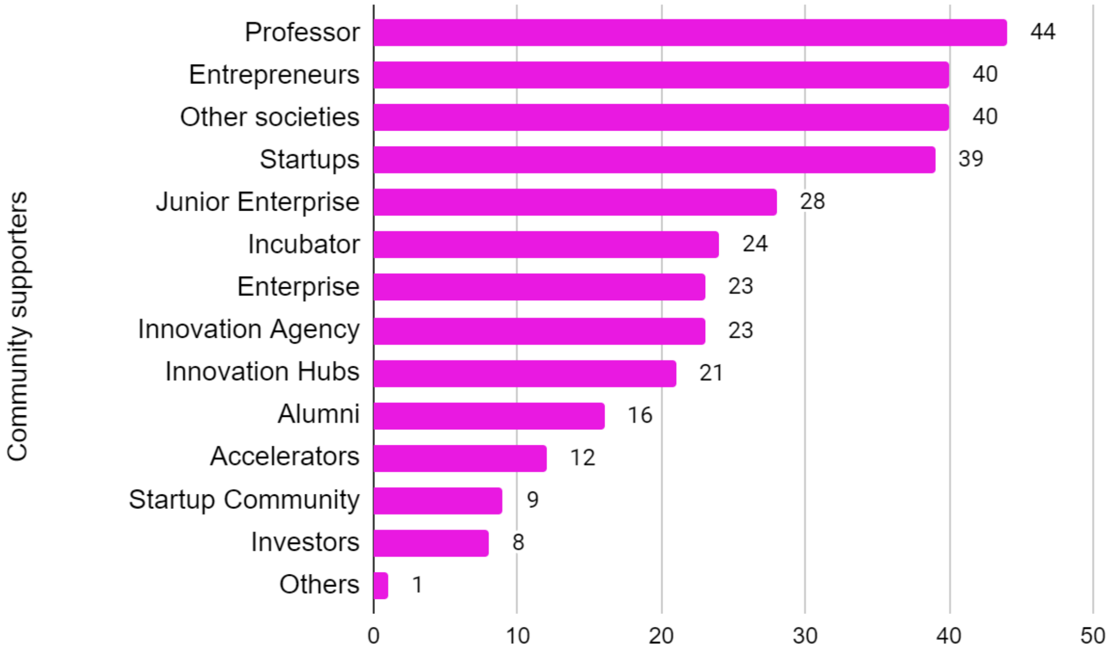


Community supporters

SES were asked to inform what were their community supporters: people that offer mentoring sessions, support or participate in some of the SES activities, despite giving support to startups created in the context of SES projects and/or by SES members. In this session, 55 out of 57 SES (96%) answered the question.

As seen in Figure 8, respondents informed that SES were supported by Professors (44), Entrepreneurs (40), Other SES (40), Startups (39), Junior Enterprises (28), Incubators (24), Enterprises (23), Innovation Agencies (23), Innovation Hubs (21), Alumni (16), Accelerators (12), Startup Communities (9), Investors (8), Angel Investors (5), and Others (1).

Figure 8. Community supporters of Student Entrepreneurship Societies and Clubs.



The fact that Professors are the most cited supporters confirms that SES are academic initiatives, with potential to impact the education of students. It is relevant to highlight that, according to these results, through the SES activities, the student's experiences are enriched by a combined influence of Professors, Entrepreneurs, their startup community and other students looking to improve their innovation and entrepreneurship skills. According to Pan (2018) in some cases, the SES need an institutional management or advice from mentors or professors to help manage the SES and make them successful organizations.

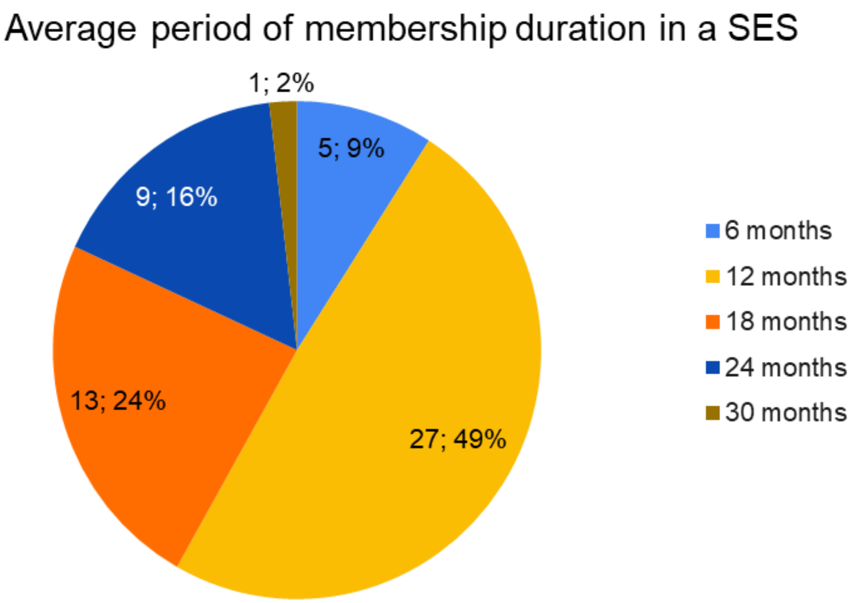
The influence of university support can be furtherly studied in the research of Lestari, Rizkalla & Purnamaningsih (2022), indicate that perceived educational support directly affects entrepreneurial intention. The Universities can create a fertile soil for these student entrepreneurs by providing essential resources, spreading SES activities to all students and supporting SES activities such as courses and talks, associating academic credit to SES activities, fostering the startup ecosystem in the University, and giving to the student active role in this process.

Period as SES Member

We asked the SES representatives about the average period of student participation in SES activities, and 56 SES out of 57 (98%) answered this question. Almost half of respondents, 21 SES (49%), answered that the average period of member participation was twelve months. The other answers were six months - 5 SES (9%), eighteen months - 13 SES (24%), twenty-four months - 9 SES (16%), and more than thirty months - 1 SES (2%). In addition, we asked the average period for members to develop leadership. The most common answer

was six months (58%). Other answers were twelve months (38%), and eighteen months (4%).

Figure 9. Average period of membership duration in Student Entrepreneurship Societies and clubs.



Main challenges

The main challenges faced by Brazilian SES are exhibited in Table 1. This question was answered by 53 out of 57 SES (93%) representatives. Financial support was the challenge most appointed (40 SES, from a total of 53 SES which answered this question). Others mentioned the difficulty to attract new members (28 SES), lack of measurement of results (23 SES), low engagement of members (23 SES), contact with local startup communities (22 SES), training of new leaders (22 SES), low number of projects (21 SES), low engagement by the university (19 SES), transmitting knowledge to new members (19 SES), bureaucracies when dealing with legal authorities (18 SES), difficulties to teach in projects of SES (18 SES), internal communication (16 SES), bureaucracies with university, difficulties to establish SES as an official extracurricular activity in their university (16 SES), lack of marketing strategies (14 SES), lack of professor support (11 SES), lack of main communication channel (10 SES), lack of human resources (9 SES), lack of enterprise reliability (8 SES), difficulties to adopt a horizontal corporate culture (7 SES).

Table 1. Main challenges of Brazilian Societies and Clubs in 2021

Challenges	Frequency
Financial support	40
Attracting new members	28
Lack of measurement of results	23
Low engagement of members	23
Contact with local startup community	22
Formation of new leaders	22
Small number of projects	21
Overworked members	21
Low engagement of university	19
Transmit knowledge to new members	19
Bureaucracies with legal authorities	18
Difficulties to teach	18
Internal communication	16
Bureaucracies with university	16
Lack of Marketing Strategies	14
Low infrastructure to virtual events	12
Lack of professor support	11
Lack of main communication channel	10
Lack of human resources	9
Lack of enterprise's reliability	8
Difficulties to adopt horizontal culture	7

The research of Pan (2018) pointed out the problems of creation and management of the SES in China, and they were similar to the ones obtained in Brazilian SES. The development of professional management was a problem in both countries.

New Venture Creation

The SES members were asked about how many startups have been created by their fellow SES members, or by former members, or even as a result of SES activities and/or with any form of support by SES. A total of 28 out of 57 SES (49,1%) answered this question. However, only 8 of the 28 respondents (28,57%) had data about startups created. The other SES informed they had no startup created from their activities (14 SES, corresponding to 50%) or that they didn't know if such data was available (6 SES – 21,4%). A total of 24 startups had been created by SES members, or by former members, or as a result of SES activities and/or support.

DISCUSSION

This study aimed to characterize the Brazilian scenario of Student Entrepreneurship Societies (SES), to provide a better understanding on the activities the SES are developing, their challenges, main supporters, and to shed light on how SES are impacting startup creation, student readiness for professional life.

Scenario of Student Entrepreneurship Societies in Brazil (SES)

We found 92 SES in Brazil. Ninety-two branches of the same root. Only 97 (3,7%) from the 2608 Brazilian Universities (MEC, 2015) were linked to a Student Entrepreneurship Society (SES). In 2020, there was a total of 3526 universities in China (Statista, 2020a). According to the National College Student Science and Technology Pioneer Park, in 2016 there were more than 280 SES in China (Pan, 2018). Supposing that each SES was linked to one university, 7,9% of the Chinese Universities would be linked to a SES. In the UK, there was a total of 164 universities or higher education institutions (Statista, 2020b) and over 200 SES (NACUE, 2021). However, we did not find a clearly defined selection criteria for SES in the Chinese and the UK research, and this is a limitation for objective comparison.

The 940 students directly involved in the 57 respondent SES (61,9% of the 92 total SES) mean 0,01% of the 8.03 million Brazilian Students (MEC, 2015). In the UK, there were 32,000 students involved in SES (NACUE, 2021), from a total of 2,66 million students (UK Parliament, 2022). So, the number of students that participated in a SES in the UK corresponded to 1,2% of the total number of British university students.

Most (54,4%) of the Brazilian SES members that answered at least one of the two questionnaires were part of SES founded in 2019, 2020, and 2021. Such numbers indicate that SES movement may increase in Brazil in the next years. SES are branches of a student startup revolution. Similar to the proposed by Isenberg (2010), where governments create an ecosystem that sustain entrepreneurs, universities need to create an ecosystem that supports the SES and student entrepreneurs.

Impact on New Business Creation

What about the fruits of Student Entrepreneurship Societies? We appraised the fruits of SES as their impact on new venture creation and on student education. Only 10 of the 56 SES (17,85%) had data about startups created by SES members, or by former members, or even as a result of SES activities and/or support. These 8 respondent SES reported some participation and/or support in the creation of 24 startups. Such low percentage (17,85%) of respondents on this matter did not allow us to set up objective and definitive conclusions. Therefore, new research should be conducted to shed light on the impact of Brazilian SES on new business creation.

Impact on Student Entrepreneurial Skills

Brazilian SES have projects in practically all areas: Education, Marketing, Finance, Management, Engineering, Information Technology and others (as seen in Figure 5). In their daily activities they promote Talks, Workshops, Networking Events, Hackathons / Idea Competitions, Business Plan Competitions,

Demodays, Mentoring Sessions, and other activities (as shown in Figure 6). The most common themes they study are Canvas Business Model, how to introduce new business with an elevator pitch, Minimum Viable Product, Design Thinking, Agile Methodologies like Scrum & Kanban, and Lean Startup (Figure 7).

During a period of, usually, 12 to 18 months (Figure 9), students involved in SES are studying topics related to business creation, participating in networking events, business competitions, developing practical projects, interacting with students from all fields and receiving support from professors, entrepreneurs, startups, investors, accelerators and other agents of the ecosystem (Figure 8). The contact with entrepreneurs could teach a lot to people that lack practical experience in business creation (Jardim, 2015).

Through involvement in Student Entrepreneurship Societies, the students' education and development is enriched by knowledge and practice, networking, and direct influence from professors, entrepreneurs, startup communities and from other students searching for growth in their innovation and entrepreneurship skills.

Research Contributions and Limitations

One of the main contributions of this study was the creation of the database itself, with data about the Brazilian SES. The results have also provided a better understanding on the activities the SES are developing, their difficulties, and about how the university and other agents can improve support. We have depicted a significative scenario on the impact of the SES on the development of student's entrepreneurial skills. Such findings can help universities, policy makers and other agents of the startup ecosystem in their decisions, in order to give better support and to promote entrepreneurship among higher education students.

As a limitation of the study, we found few data about startup creation in the context of SES. As a second limitation, we encountered difficulties to establish clear criteria to compare our results with the ones from other countries.

Final Recommendations

Although SES may be regarded as a grassroots and independent movement, their highly positive impact on a student formation, both professionally and personally, should lead policy makers, startup communities, investors, and universities to consider planting SES seeds in fertile soil, to give them plenty of water and whatever more they need to grow stronger and spread their branches and fruits, collaborating to feed and heal the world through education.

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